Answers to *Understanding the Cosmic Microwave Background* worksheet:

1) The CMB is the Cosmic Microwave Background. It is the baby picture of the early Universe since it is the waves that spread out from the Big Bang. The Big Bang occurred 13.7 billion years ago.

2) As temperature decreases substances become more dense (except for water at 4 degrees C.) Decreasing temperature makes objects decrease in volume. Since density is mass/ volume, if the volume decreases the density increases.

3) The slight variations in temperature lead to areas that are more dense, and these colder, denser regions have a slightly larger gravity. As a result, they collect more matter - leading to large-scale structures such as stars.

4) The first picture demonstrates the CMB before the effect of the direction of motion is removed. When moving towards light, the light appears blue shifted (as seen in the lower left). When moving away, the light is red shifted (as seen in the top right).

   The second picture still shows the light from the Milky Way (our galaxy) that we look through to see the CMB.